

CLAIMS

What is claimed is:

1. A device comprising: a floating bus (214, 215); a power and data system (107, 301, 310, 103) for driving the floating bus, the power and data system comprising a charge pump circuit; and at least one switch control circuit (402, 411) coupled to the floating bus and the power and data system for facilitating charging of the floating bus and for controlling electromagnetic emission from the device.
2. The device of claim 1, wherein the at least one switch control circuit comprises a first switch control circuit (402) and a second switch control circuit (411), the first switch control circuit comprising at least one P type transistor circuit, and the second switch control circuit comprising at least one N type transistor circuit and wherein the first switch control circuit and the second switch control circuit comprise complementary circuits.
3. The device of claim 2, wherein the first switch control circuit (402) is electrically connected to a first bus node (214) of the floating bus and the second switch control circuit (411) is electrically connected to a second bus node (215) of the floating bus.
4. The device of claim 1, wherein the charge pump circuit comprises an integrated circuit employing at least one transistor and diode pair (301, 317; 310, 320).
5. The device of claim 1, wherein the at least one switch control circuit (402, 411) is operable in at least a low speed mode and a high speed mode, with mode of the at least one switch control circuit being dependent upon a desired floating bus charging speed.
6. The device of claim 1, wherein the floating bus comprises a balanced bus system having a high side bus node (214) and a low side bus node (215), and wherein the at least one switch control circuit comprises a first switch control circuit (402) and a first diode (318) connected to the high side bus node and a second switch control circuit (411) and a second diode (319) connected to the low side bus node.
7. The device of claim 6, wherein the first switch control circuit (402) and the second switch control circuit (411) are driven by a reference circuit (421), the reference circuit generating a first reference signal for the first switch control circuit and a second reference signal for the second switch control circuit.
8. The device of claim 7, wherein when a voltage across a first terminal and a second terminal of the first switch control circuit is greater than a threshold value, output current from the first switch control circuit is constant at a value dependent on the first

reference signal, and when voltage across a first terminal and a second terminal of the second switch control circuit is greater than the threshold value, output from the second switch control circuit is constant at a value dependent on the second reference signal.

9. The device of claim 1, wherein the at least one switch control circuit controls electromagnetic emission from the device by constraining the slew rate on the floating bus.

10. A circuit comprising: a first switch control circuit (402) for electrical coupling to a high side bus node (214) of a floating bus, and a second switch control circuit (411) for electrical coupling to a low side bus node (215) of the floating bus, wherein the first switch control circuit and the second control circuit comprise complementary circuits for controlling charging of the floating bus by a power and data system (107, 301, 310, 103); and a reference circuit (421) for generating a first reference signal for the first switch control circuit and a second reference signal for the second switch control circuit, wherein the first reference signal and the second reference signal are employed by the first switch control circuit and the second switch control circuit, respectively, for controlling electromagnetic emissions from the floating bus by constraining a slew rate on the floating bus.

11. The circuit of claim 10, wherein the power and data system (107, 301, 310, 103) comprises a charge pump circuit, the charge pump circuit comprising an integrated circuit.

12. The circuit of claim 10, wherein the first switch control circuit (402) comprises a P type transistor circuit, and the second switch control circuit (411) comprises a complementary N type transistor circuit.

13. The circuit of claim 10, wherein the first switch control circuit (402) and the second switch control circuit (411) are each operable in at least a low speed mode and a high speed mode, with mode of the first switch control circuit and the second switch control circuit being determined by the first reference signal and the second reference signal generated by the reference circuit (421) in response to an input control signal which is dependent upon a desired floating bus charging speed.

14. A method comprising: tailoring a transfer characteristic of a first switch control circuit (402) to be electrically coupled to a high side bus node (214) of a floating bus, and tailoring a transfer characteristic of a second switch control circuit (411) to be electrically coupled to a low side bus node (215) of the floating bus, wherein the first switch control circuit and the second switch control circuit comprise complementary control

circuits for controlling charging of the floating bus by a power and data system (107, 301, 310, 103); and generating, when in use, a first reference signal (PRef) for the first switch control circuit and a second reference signal (NRef) for the second switch control circuit, wherein the first reference signal and the second reference signal are employed by the first switch control circuit and the second switch control circuit, respectively, for controlling electromagnetic emission from the floating bus by constraining a slew rate on the floating bus.

15. The method of claim 14, wherein the power and data system (107, 301, 310, 103) comprises a charge pump circuit, the charge pump circuit comprising an integrated circuit.

16. The method of claim 15, further comprising integrating the first switch control circuit (402) and the second switch control circuit (411) on the integrated circuit with the charge pump circuit.

17. The method of claim 14, wherein the first switch control circuit (402) and the second switch control circuit (411) are each operable in at least a low speed mode and a high speed mode, with mode of the first switch control circuit and second switch control circuit being determined by the first reference signal and the second reference signal, wherein the first reference signal and the second reference signal are generated by a reference circuit (421) electrically coupled to the first switch control circuit and the second switch control circuit, and wherein the method further comprises providing an input control signal to the reference generator for controlling a value of the first reference signal and a value of the second reference signal.

18. A circuit comprising: means for tailoring a transfer characteristic of a first switch control circuit (402) to be electrically coupled to a high side bus node (214) of a floating bus, and for tailoring a transfer characteristic of a second switch control circuit (411) to be electrically coupled to a low side bus node (215) of the floating bus, wherein the first switch control circuit and the second switch control circuit comprise complementary control circuits for controlling charging of the floating bus by a power and data system (107, 301, 310, 103); and means for generating, when in use, a first reference signal (PRef) for the first switch control circuit and a second reference signal (NRef) for the second switch control circuit, wherein the first reference signal and the second reference signal are employed by the first switch control circuit and the second switch control circuit,

respectively, for controlling electromagnetic emission from the floating bus by constraining a slew rate on the floating bus.